What is claimed is:

1. A control system for controlling airflow through a vent, the system comprising:

a vent assembly comprising:

a frame having an opening to allow air to flow through the frame;

a movable damper for variably restricting the fluid flow through the opening in the vent assembly;

a motor for controlling movement of the damper;

a sensor for determining the position of the damper; and

a controller for controlling the motor to vary the position of the damper to thereby vary the airflow through the opening in the vent assembly.

2. The control system according to claim 1, further comprising:

a position code provided on at least one of the vent assembly and the damper, wherein the sensor is configured to read the position code to determine the position of the damper.

3. The control system according to claim 2, wherein the position code comprises a series of marks and spaces.

4. The control system according to claim 2, wherein the position code comprises a barcode and the sensor comprises a barcode reader.

5. The control system according to claim 2, wherein the position code comprises a series of indentations configured to represent damper position information and wherein the sensor comprises a tactile sensor.

6. The control system according to claim 1, wherein the position code is provided on the frame and the sensor is configured to move with the damper.

7. The control system according to claim 1, wherein the sensor is attached to the frame and the position code is provided on the damper, and wherein the position code is configured to move with the damper.

8. The control system according to claim 1, wherein the controller is provided on at least one of the vent assembly and a device separate from the vent assembly.

9. The control system according to claim 8, wherein the device is separate from the vent assembly and comprises at least one of a central controller and a robotic device.

10. The control system according to claim 1, wherein the sensor comprises an optical sensor having an array of light emitting diodes and a corresponding array of light receiving diodes and wherein the controller is configured to determine the position of the damper based upon at least one of a blockage of light between the arrays of light emitting diodes and light receiving diodes and a reflectance of light between the arrays of light emitting diodes and light receiving diodes.

11. The control system according to claim 10, wherein the light receiving diodes are configured to send detected signals to logic gates and an addressable switch, and wherein the logic gates and the addressable switch operate as the controller.

12. The control system according to claim 11, wherein the logic gates comprise a plurality of Exclusive OR gates and a plurality of OR gates, wherein the plurality of Exclusive OR gates are configured to receive input signals from the light receiving diodes and input signals from the addressable switch and to compare the input signals from the light receiving diodes and the addressable switch, and wherein the Exclusive OR gates are configured to output one of a high value or a low value based on the comparison.

13. The control system according to claim 12, wherein the Exclusive OR gates are configured to output a high value if the input signals are the same, and wherein the Exclusive OR gates are configured to output a low value if the input signals differ.

14. The control system according to claim 13, wherein one or more of the plurality of OR gates are configured to receive input from two of the Exclusive OR gates, said one or more of the plurality of OR gates also being configured to compare the input from the two of the Exclusive OR gates and to output one of a high value and a low value based on the comparison.

15. The control system according to claim 14, wherein the one or more of the plurality of OR gates are configured to output a high value if the inputs from one or both of the two of the Exclusive OR gates is high, wherein the one or more of the plurality of OR gates are configured to output a high value if the inputs from the two of the Exclusive OR gates differ from one another, and wherein the one or more of the plurality of OR gates are configured to output a low value if the inputs from the two of the Exclusive OR gates are low.

16. The control system according to claim 15, wherein the logic gates comprise another OR gate configured to receive input from two of the plurality of OR gates, wherein the another OR gate is configured to output a high value if at least one of the two OR gates outputs a high value, and wherein the another OR gate is configured to output a low value if both of the OR gates outputs a low value.

17. The control system according to claim 16, further comprising:

a solid state relay configured to receive input from the another OR gate, said solid state relay also being configured to supply power to the motor if the another OR gate outputs a low value, and wherein the solid state relay is configured to supply power to the motor until the another OR gate outputs a high value.

18. The control system according to claim 1, further comprising:

a power supply for powering the motor, wherein the controller is operable to control the motor by varying the power supplied to the motor.

19. The control system according to claim 18, wherein the power supply is provided on at least one of the vent assembly and a remote location.

20. The control system according to claim 19, wherein the power supply is provided on the remote location and the remote location comprises at least one of a robotic device and a central controller.

21. The control system according to claim 1, wherein the damper is attached to the motor through linkage having a disk and an arm, said arm being positioned on the disk offset from a center of the disk.

22. The control system according to claim 21, wherein the motor comprises a uni-directional motor and wherein the linkage enables lateral movement of the damper along two directions.

23. The control system according to claim 1, wherein the damper is attached to a drive link threadably attached to a drive screw, wherein the motor is attached to the drive screw, and wherein operation of the motor is configured to rotate the drive screw and translate the damper.

24. The control system according to claim 1, wherein the damper comprises a plurality of vanes connected through a transfer bar, wherein one of said plurality of vanes is rotatable by said motor and wherein rotation of the one of said plurality of vanes causes rotation of the others of the plurality of vanes through operation of the transfer bar.

25. The control system according to claim 1, wherein the motor is substantially centrally attached to the damper, and wherein the damper contains vanes and apertures configured to move with respect to the opening to thereby vary the size of the opening.

26. The control system according to claim 25, wherein the damper comprises position code readable by the sensor.

27. The control system according to claim 1, further comprising:

a robotic device having an interface for interfacing with the vent assembly, said vent assembly having a complementary interface to communicate with the robotic device, said robotic device being configured to supply power to the motor through the interface to vary the position of the damper.

28. A method for controlling airflow through a vent assembly, said vent assembly having a movable damper configured to vary the size of an opening in the vent assembly and a motor to move the damper, the method comprising:

determining a target position for the damper;

determining a current position of the damper;

determining whether the current position of the damper substantially equals the target position for the damper;

supplying power to the motor to move the damper in response to the current position not substantially equaling the target position; and

stopping the motor when the current position of the damper is substantially equal to the target position to thereby vary the size of the opening to a desired level.

29. The method according to claim 28, wherein the step of determining a target position for the damper comprises determining a desired airflow volume through the vent assembly and correlating a target position from the desired airflow volume.

30. The method according to claim 28, wherein the step of detecting a current position of the damper comprises detecting information from a position code, said position code including indicia configured to indicate various positions of the damper.

31. The method according to claim 30, wherein the step of detecting information from a position code comprises detecting a current position of the damper by sensing a position code positioned on at least one of a frame of the vent assembly and the damper.

32. The method according to claim 28, wherein the step of detecting a current position of the damper comprises determining the current position of the damper through detection of a number of blockages of light by the damper between an array of light emitting diodes and an array of light receiving diodes.

33. The method according to claim 28, wherein the step of detecting a current position of the damper comprises determining the current position of the damper through detection of light reflected by a position code positioned on at least one of the damper and the vent assembly.

34. The method according to claim 28, wherein the step of determining a current position of the damper comprises optically detecting the current position of the damper with an optical sensor, the method further comprising:

sending a signal related to the current position of the damper from the optical sensor to an addressable switch and an Exclusive OR gate;

sending a signal related to the target position from addressable switch to the Exclusive OR gate;

in the Exclusive OR gate, comparing whether the signal received from the optical sensor matches the signal received from the addressable switch;

outputting a high value in response to the signal received from the optical sensor matches the signal received from the addressable switch; and

outputting a low value in response to the signal received from the optical sensor differing from the signal received from the addressable switch.

35. The method according to claim 34, further comprising:

in an OR gate,

receiving input from two Exclusive OR gates;

outputting a high value in response to receipt of a high value from one or both of the two Exclusive OR gates;

outputting a low value in response to receipt of a low value from both of the two Exclusive OR gates; and

in another OR gate,

receiving input from two OR gates;

outputting a high value in response to receipt of a high value from at least one of the two OR gates; and

outputting a low value in response to receipt of a low value from both OR gates.

36. The method according to claim 35, further comprising:

sending input from the another OR gate to a solid state relay; and

in the solid state relay, supplying power to the motor in response to receipt of a low value from the another OR gate.

37. The method according to claim 36, wherein the step of supplying power to the motor comprises supplying power to the motor until receipt of a high value from the another OR gate.

38. The method according to claim 28, wherein the step of supplying power to the motor comprises supplying power from a power source located at least on one of the vent assembly or externally located on a robotic device.

39. The method according to claim 28, further comprising:

calculating a difference between the current position and the target position;

calculating a time of operation of the motor to move the damper from the current position to the target position; and

wherein the step of supplying power to the motor comprises supplying power to the motor for the calculated time of operation.

40. The method according to claim 28, further comprising:

detecting a position of the damper during the step of supplying power to the motor.

41. A system for controlling airflow through a vent assembly, said vent assembly having a movable damper configured to vary the size of an opening in the vent assembly and a motor to move the damper, the system comprising:

means for determining a target position for the damper.

means for detecting a current position of the damper;

means for determining whether the current position of the damper substantially equals the target position for the damper;

means for supplying power to the motor to move the damper in response to the current position not substantially equaling the target position and

means for stopping the motor when the current position of the damper is substantially equal to the target position to thereby vary the size of the opening to a desired level.

42. The system according to claim 41, further comprising:

means for determining a desired airflow volume through the vent assembly; and

means for correlating a target position from the desired airflow volume.

43. The system according to claim 41, wherein the means for detecting a current position of the damper comprises means for detecting information from a position code, said position code including indicia configured to indicate various positions of the damper.

44. The system according to claim 41, wherein the means for detecting a current position of the damper comprises means for determining the current position of the damper through detection of a number of blockages of light by the damper between an array of light emitting diodes and an array of light receiving diodes.

45. The system according to claim 41, further comprising:

means for calculating a difference between the current position and the target position;

means for calculating a time of operation of the motor to move the damper from the current position to the target position; and

wherein the means for supplying power to the motor comprises means for supplying power to the motor for the calculated time of operation.

46. The system according to claim 41, wherein the means for supplying power to the motor comprises a robotic device, said robotic device having means for interfacing with the vent assembly.

47. A computer readable medium on which is embedded one or more computer programs, said one or more computer programs implementing a method for controlling airflow through a vent assembly, said vent assembly having a movable damper configured to vary the size of an opening in the vent assembly and a motor to move the damper, said one or more computer programs comprising a set of instructions for:

determining a target position for the damper;

detecting a current position of the damper;

determining whether the current position of the damper substantially equals the target position for the damper;

supplying power to the motor to move the damper in response to the current position not substantially equaling the target position and

stopping the motor when the current position of the damper is substantially equal to the target position to thereby vary the size of the opening to a desired level.

48. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

determining a desired airflow volume through the vent assembly and correlating a target position from the desired airflow volume.

49. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

detecting information from a position code, said position code including indicia configured to indicate various positions of the damper.

50. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

detecting a current position of the damper by sensing a position code positioned on at least one of a frame of the vent assembly and the damper.

51. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

determining the current position of the damper through detection of a number of blockages of light by the damper between an array of light emitting diodes and an array of light receiving diodes.

52. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

supplying power from a power source located at least on the vent assembly or externally located on a robotic device.

53. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

calculating a difference between the current position and the target position;

calculating a time of operation of the motor to move the damper from the current position to the target position; and

wherein the step of supplying power to the motor comprises supplying power to the motor for the calculated time of operation.

54. The computer readable storage medium according to claim 47, the one or more computer programs further comprising a set of instructions for:

detecting a position of the damper during the supply of power to the motor.